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Electron Beam Jitter Study for the IRFEL/CDRL,* C. KIM, Lawrence Berkeley Laboratory — A highly stable 50 MeV electron linac is being studied as a driver of the Infra-Red, Free-Electron Laser for the proposed Chemical Dynamics Research Laboratory (CDRL)[1] at LBL. Requirements for the timing, positional, and energy jitter tolerances for the electron micro-pulses are very stringent. In this paper we present the results of a numerical simulation study which was carried out to establish tolerances at the subsystem level. Errors included in the study were: electron gun voltage, current, and timing errors; phase and amplitude errors of the rf systems; misalignments of the gun and the focusing magnets; and temporal fluctuations of the focusing-magnet power supplies.

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[1]"Chemical Dynamics Research Laboratory Conceptual Design Summary," Lawrence Berkeley Laboratory Report, PUB-5266, April 1990.

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